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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,786	09/17/2003	Shigeru Kuramoto	242926US0	2975

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EXAMINER

ALEXANDER, MICHAEL P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 05/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/663,786

Applicant(s)

KURAMOTO ET AL.

Examiner

Michael P. Alexander

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 7-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 11-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim(s) 1-14 is/are pending. Claims 7-10 are withdrawn.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-6 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahmed (US 5,871,595).

Regarding claim 1, Ahmed teaches (col. 4 lines 60-61, col. 5 lines 39-50, col. 6 lines 17-20) a titanium alloy comprising: between 20% and 40% by weight Nb, between 4.5% and 25% by weight Ta, and the balance Ti, with weight of Nb plus Ta being between 35% and 52%, and further containing up to 0.5% by mass of at least one interstitial element selected from C, N and O, having an all beta structure. Ahmed does not necessitate the addition of any aluminum.

Art Unit: 1742

With respect to the claimed elemental formula in claim 1, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688. The titanium alloy of Ahmed with the disclosed compositional ranges is covered by the claimed compositional formula. It would have been obvious to one of ordinary skill in the art to select the desired amounts of Nb and Ta from the ranges of Nb and Ta disclosed by Ahmed such that satisfies the claimed compositional formula because Ahmed teaches the same utility throughout the disclosed ranges.

With respect to the claimed interstitial range, the Examiner notes that the claimed interstitial range overlaps with the range disclosed by Ahmed, which is prima facie evidence of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to select the desired amount of interstitial elements from the range of Ahmed because Ahmed teaches the same utility throughout the disclosed range.

Regarding claim 2, Ahmed teaches (col. 6 lines 17-20) that the interstitial would be O.

Regarding claim 3, Ahmed teaches (col. 2 lines 34-37) that the alloy would possess a modulus of about 50-60 GPa.

Regarding claims 4-5, Ahmed does not specify that the alloy would have the claimed tensile strength of the claimed elastic deformability. However, the Examiner asserts that the alloy of Ahmed would inherently have the claimed properties because the alloys have substantially the same composition and substantially the same processing (i.e. solution heat treatment to ensure an all beta structure).

Regarding claim 6, Ahmed teaches (col. 2 lines 50-55) that the alloy would comprise about 2.5 up to 13% Zr, which overlaps with the claimed range, which is prima facie evidence of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to select the desired amount of Zr from the range disclosed by Ahmed because Ahmed teaches the same utility throughout the disclosed range.

Regarding claim 11, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688. The titanium alloy of Ahmed with the disclosed compositional ranges is covered by the claimed compositional formula. It would have been obvious to one of ordinary skill in the art to select the desired amounts of Nb and Ta from the ranges of Nb and Ta disclosed by Ahmed such that satisfies the claimed

compositional formula because Ahmed teaches the same utility throughout the disclosed ranges.

Claims 1-6 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura (JP 05-279773).

Regarding claim 1, Yoshimura teaches (0014) a titanium alloy comprising: 9-27% V, Mo and Cr, and one or more of 0.5-4% Al, 1-6% Sn, and 3-8% Zr, with the balance Ti and inevitable impurities, along with 0.1-0.8% O, being beta single phase at room temperature.

With respect to the claimed elemental formula in claim 1, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688. The titanium alloy of Yoshimura with the disclosed compositional ranges is covered by the claimed compositional formula. It would have been obvious to one of ordinary skill in the art to select the desired amounts of V, Mo, Cr, Al, Sn and Zr from the ranges disclosed by Yoshimura such that satisfies the claimed compositional formula because Yoshimura teaches the same utility throughout the disclosed ranges.

With respect to the claimed ranges of Al and O in claim 1, the Examiner notes that the claimed amounts of Al and O overlap with the disclosed amounts of Al and O,

Art Unit: 1742

which is prima facie evidence of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to select the desired amounts of Al and O from the ranges disclosed by Yoshimura because Yoshimura teaches the same utility throughout the disclosed ranges.

Regarding claim 2, Yoshimura teaches (0014) that the interstitial would be O.

Regarding claims 3-5, Yoshimura does not specify that the alloy would have the claimed flexibility, tensile strength, or elastic deformability. However, the Examiner asserts that the alloy of Yoshimura would inherently have the claimed properties because the alloys have substantially the same composition. See MPEP 2112.01 II.

Regarding claim 6, Yoshimura teaches (0014) 3-8% Zr.

Regarding claim 11, it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art, *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177; 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In the absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art. *In re Austin, et al.*, 149 USPQ 685, 688. The titanium alloy of Yoshimura with the disclosed compositional ranges is covered by the claimed compositional formula. It would have been obvious to one of ordinary skill in the art to select the desired amounts of V, Mo, Cr, Al, Sn and Zr from the ranges disclosed by Yoshimura such that satisfies the claimed compositional formula because Yoshimura teaches the same utility throughout the disclosed ranges.

Regarding claims 12-14, the Examiner notes that the claimed amounts of Al and O overlap with the disclosed amounts of Al and O, which is prima facie evidence of obviousness. See MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to select the desired amounts of Al and O from the ranges disclosed by Yoshimura because Yoshimura teaches the same utility throughout the disclosed ranges.

Response to Arguments

Applicant's arguments filed 27 April 2006 have been fully considered but they are not persuasive.

First applicant argues that Ahmed does not recite nor require an index as a determining factor in the stabilization of the beta phase of the alloy. In response, the Examiner notes that the claims are drawn to a titanium alloy and not to a method of using an index as a determining factor in the stabilization of the beta phase of a titanium alloy. The issue is whether the titanium alloys defined by the claimed index would be distinguished from the titanium alloys of Ahmed which are defined by compositional ranges.

Second, applicant argues that Ahmed teaches that the alloys can be an all beta structure or an alpha-beta alloy, and that therefore an all beta structure is not required. In response, the Examiner asserts that the fact that Ahmed teaches some embodiments which do not have an all beta structure does not eliminate the fact that Ahmed teaches other embodiments which do have all beta structure.

Third, applicant argues that the claimed range of 0.5 to 3% of interstitials is distinguished from the disclosed range (see col. 5 lines 1-4) that the total of interstitials would not exceed 0.5% by weight. The Examiner disagrees. The claimed range overlaps the disclosed range, which is prima facie evidence of obviousness. See MPEP 2144.05 I.

Fourth, applicant argues that none of the disclosed embodiments fall within the claimed interstitial range. In response, the Examiner asserts that the teachings of a reference are not limited to the preferred embodiments. See MPEP 2123 I.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Art Unit: 1742

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Alexander whose telephone number is 571-272-8558. The examiner can normally be reached on M-F 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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